

REMARKS

Claims 2-17 are pending in this application. Withdrawn claims 3, 6 and 8-13 are cancelled without prejudice or disclaimer, and claim 2 is amended herein.

Claims 2, 4, 15 and 17 are independent.

Claim 2 is objected to on informality grounds. Claim 2 is amended as proposed by the Examiner to address the noted concern.

Claims 2 and 14-17 stand rejected under 35 USC §102(b), as anticipate by Tucker et al. (U.S. Patent No. 4,929,423). Claims 4-5 and 7 stand rejected under 35 USC §103(a), as obvious over Kenji et al. (JP Pub. 11-021660), in view of Tucker. The rejections are respectfully traversed.

The traversal arguments presented in the response filed on September 9, 2002, are reasserted herein.

In responding to the previously presented traversal arguments, the Examiner asserts that the mass of phosphorus required in independent claims 2, 4, 15 and 17 is disclosed in column 1, line 37, of Tucker. The Examiner further asserts that the mass of silver required in independent claims 2, 4, 15 and 17 is disclosed by Tucker in column 1, lines 43-46.

It is respectfully submitted that the Examiner continues to ignore the fact that Tucker discloses in column 1, lines 21-27, a first composition, which is essentially free of bismuth.

On the other hand, in column 1, lines 28-40, Tucker described an entirely different second composition, which includes bismuth.

In column 1, lines 41-48, Tucker describes a third composition, which includes bismuth but is different than the second composition.

Accordingly, since each of independent claims 2, 4 and 17 require a composition which excludes bismuth, these claims cannot be anticipated by the composition described by Tucker in column 1, lines 28+. It should be noted that claim 14 explicitly recites that the composition of claim 2 excludes bismuth, although this is implicit in the claim 2 recital of a balance consisting of tin.

Furthermore, the composition described by Tucker in column 1, lines 21-27, which is essentially free of bismuth, lacks the mass of phosphorus required in each of independent claims 2, 4 and 17.

With regard to independent claim 15, as noted above, the composition described by Tucker in column 1, lines 21-27, lacks the required mass of phosphorus. Furthermore, the composition described by Tucker in column 1, lines 33-40, lacks the required mass of silver. The composition described by Tucker in column 1, lines 41-48, which, as noted above, requires a different range of silver from the composition described in column 1, lines 33-40, lacks the required mass of phosphorus.

Furthermore, claim 16 requires that tin form the balance of the composition of claim 15. Accordingly, claim 16 requires a composition which excludes bismuth and hence, further distinguishes over the compositions described by Tucker in column 1, lines 28+.

Accordingly, Tucker does not anticipate any of the claims 2 or 14-17.

With respect to independent claim 4, the Examiner acknowledges that Kenji does not disclose the required mass of phosphorus, silver and copper with the balance consisting of tin. The Examiner asserts that a composition having the required masses of these elements is disclosed by the composition described by Tucker in column 1, lines 37-38.

However, as has been previously discussed, the compositions described by Tucker in column 1, lines 28+, require bismuth. The composition recited in claim 4 is formed of phosphorus, silver and copper, with the balance consisting of tin, and accordingly excludes bismuth. Hence, the proposed combination of Kenji and Tucker lacks any teaching or suggestion of the invention as recited in claims 4-5 and 7.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed local telephone number, in order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, if any further comments, questions or suggestions arise in connection with the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 01-2135 and please credit any excess fees to such deposit account.

Respectfully submitted,
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PATENT TRADEMARK OFFICE

APPENDIX TO RESPONSE TO OFFICIAL ACTION DATED NOVEMBER 19, 2002
AMENDMENTS TO CLAIMS
(DELETIONS IN BRACKETS AND ADDITIONS UNDERLINED)

IN THE CLAIMS

Please amend the claims as follows:

2. (Twice Amended) [The] A lead-free solder comprising an alloy composition containing 2.0 to 5.0% by mass of silver, 0.01 to 2.0% by mass of copper, and 0.002 to 0.015% by mass of phosphorus with the balance consisting of tin.